

REMARKS

By this amendment, claim 8 is revised by incorporating claim 26 therein and claims 26 and 27 are canceled. Currently, claims 8-11 and 24, and 25 are before the Examiner for consideration on their merits.

This amendment is proper for consideration and entry since it merely incorporates claim 26 into claim 8. Since claim 26 was already addressed in the rejection, this amendment cannot be considered to raise a new issue and it must be entered, even if for no reason other than appeal.

Applicants acknowledge the withdrawal of the rejection based on Esler and wish to thank the Examiner for her cooperation in past interviews with regard to this issue.

In the current Action, the Examiner alleges that claim 8 is now rendered obvious under 35 U.S.C. § 103(a) based on the combination of United States Patent No. 5,728,235 to Boulos and United States Patent No. 4,881,975 to Collier. The Examiner contends that Boulos teaches the invention but for the use of the Boulos process on a pipe. Collier is cited to demonstrate that the use of the Boulos process on a pipe would be obvious.

Applicants submit that Boulos and Collier do not establish a *prima facie* case of obviousness against claim 8, as amended, or any such case is rebutted for the reasons as set out below.

First, the claimed ratio is not overlapped and there is no reason to arrive at the claimed ratio. The claimed ratio is now 6-11. In this regard, it is important to remember the relationship between the "total acid number" and "free acid number",

which is found on page 7, lines 16-23 of the specification. That is, the acid ratio = (total acid number)/(free acid number).

According to claim 8 prior to its amendment, wherein the ratio ranged from 3 to 15, the free acid number is 2.0-18.3 when calculated using the equation above. In contrast, Boulos teaches a free acid number of -0.50 to +1.5.

In light of the revision to the ratio of claim 8, the free acid number is now 2.7 to 18.3. This range is clearly not overlapped by Boulos. Moreover, the range of claim 8 is not even close to that employed by Boulos. Given the vast difference in the free acid number range of claim 8 and the range of Boulos, the Examiner cannot say that Boulos as modified by Collier establishes a *prima facie* case of obviousness against claim 8.

Moreover, there is no basis for the Examiner to say that the claimed ratio is obvious since it would require a modification of the free acid number of Boulos in a direction opposite to that desired by Boulos. As suggested in Boulos, the lower the acid number the better, see col. 6, lines 20+, wherein Boulos teaches free acid numbers that tell one of skill in the art not to use the values specified in claim 8. Thus, one of skill in the art would not be taught to change the ratio of Boulos to produce a higher free acid number. Therefore, there is no legitimate basis to contend that Boulos could somehow be modified so as to arrive at the invention.

The invention is fundamentally different from Boulos; it is not merely the difference in the free acid number. A major difference between the invention and Boulos resides in the use of potassium ions during chemical conversion. An essential feature of the invention is the presence of potassium ions during chemical conversion

treatment of a steel containing 0.5 to 13% Cr. The thus-obtained chemical conversion film is effective for preventing galling. That is, the inventors found for the first time that the presence of potassium ions makes it possible to form a chemical conversion film on the surface of a 13% Cr steel and thus improving the resistance to galling. This finding is totally unexpected in the art.

In contrast, Boulos suggests the use of potassium hydroxide as an alkaline adjusting agent, see page 8, lines 59-61. It is to be noted that the working examples of Boulos use sodium hydroxide as the alkaline adjusting agent. The person of ordinary skill in the art would not expect the effect of potassium ions on the creating of a conversion film on 13% Cr steel based on Boulos' teachings.

Put another way, Boulos says absolutely nothing about the combination of a Cr-containing steel with the presence of potassium ions during chemical conversion, the unexpected occurrence of the formation of a chemical conversion film on the steel, and the benefits regarding galling. What Applicants are saying is.

- 1) Boulos exemplifies the use of sodium as an alkaline adjusting agent in the chemical conversion process;
- 2) Boulos does not exemplify the use of potassium as part of the chemical conversion process, just suggests it and provides no specific details regarding its use;
- 3) Boulos suggests that the chemical conversion process is adapted as an undercoating for paint and organic coating and thus does not teach using the chemical conversion process on a 0.5-13% Cr steel pipe.

5) Applicants have discovered that using potassium ions in the chemical conversion process for 0.5-13% Cr steel pipe unexpectedly forms a chemical conversion film and improved resistance to galling.

6) The finding of (5) above is one that is unexpected and a rebuttal of any allegation of obviousness based on Boulos.

While the Examiner could say that the chemical conversion film could be formed inherently if potassium were used as an alkaline adjusting agent, this is speculation on the Examiner's part and it cannot support a position of inherency. As noted above, there is no example of using potassium nor is there an example of a 0.5-13% Cr steel in Boulos. Lacking a teaching of the claimed material means that the Examiner cannot assume that the claimed film would be present in Boulos.

Even if the Examiner were to say that one could use potassium, the conditions under which potassium would be used in Boulos would be speculative and this speculative approach cannot support a position that the claimed conversion film would be inherently formed. In fact, Applicants have demonstrated for Esler that one cannot always assume that the claimed chemical conversion film will be present when potassium is present and this is further evidence to refute an inherency contention by Boulos. This means that the Examiner would have to stick to an obvious contention to reject claim 8 and the discovery discussed above is a rebuttal in this regard that defeats the rejection.

Collier does not make up for the failings in Boulos. Even if one of skill in the art were to practice the teaching of Boulos on a pipe, the invention is still not taught or is

rebutted by the unexpected finding of the ability to form a chemical conversion film on a 13% Cr steel pipe.

In light of the above, the rejection based on Boulos and Collier is overcome. The rejection is overcome by the fact that the limitations regarding the total acid number and ratio are not taught or suggested by the prior art. Further, the rejection is rebutted by the fact that Applicants are able to form a chemical conversion film on 13% Cr steel using potassium ions and this is totally unexpected from the teachings of Boulos. Consequently, claim 8 and its dependent claims are now in condition for allowance.

Accordingly, the Examiner is respectfully requested to examine this application and pass all pending claims onto issuance.

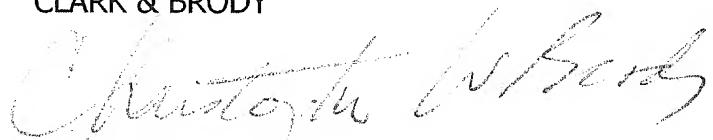
If the Examiner believes that an interview would be helpful in expediting the allowance of this application, the Examiner is requested to telephone the undersigned at 202-835-1753.

Again, reconsideration and allowance of this application is respectfully requested.

A petition for a one month extension of time is made. Please charge Deposit Account No. 50-1088 the amount of \$130.00 to cover the cost of the petition fee.

Please charge any fee deficiency or credit any overpayment to Deposit Account  
No. 50-1088.

Respectfully submitted,  
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